

US-PAT-NO: 4890620

DOCUMENT-IDENTIFIER: US 4890620 A

TITLE: Two-dimensional diffusion glucose  
substrate sensing electrode

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US Patent No. - PN (1):  
4890620

Detailed Description Text - DETX (5):

Materials useful for preparing the gelatinous layer include polyacrylamide gels, glutaraldehyde - cross-linked collagen or albumin, polyhydroxyethylmethacrylate and its derivatives and other hydrophilic polymers and copolymers. The layer can similarly be constructed by cross-linking glucose oxidase or other enzymes with chemical cross-linking reagents.

Detailed Description Text - DETX (16):

A membrane-covered cylindrical oxygen sensor was fashioned from two platinum wires and a silver wire cemented into a glass bead and coated with a hydrophobic polymer. The opposite wire ends protruding through the glass bead were connected to the electrochemical analysis instrumentation. The exposed flat end of the oxygen sensor was rendered electro-chemically inactive by the application of a thin impermeable coating. A segment of silicone rubber tubing, 0.07 in. I.D..times.0.11 in. O.D., (Dow Corning Corporation) was fitted over the sensor and cemented to the glass bead at the closed end leaving a concentric cavity. The enzymes were immobilized in a gel

formed in the  
cylindrical cavity between the sensor and the tube. The  
gel contained 20gm %  
denatured bovine achilles tendon collagen, 6gm % glucose  
oxidase from A. niger  
(Sigma Chemical Company, type VII), and catalase. These  
gel components were  
dissolved in 0.1M phosphate buffer, pH 7.3, and  
cross-linked with  
glutaraldehyde (25% solution).

Claims Text - CLTX (14):

8. A sensor system as in claim 1 wherein said first  
layer is comprised of  
polyacrylamide, glutaraldehydecross-linked collagen or  
albumen,  
polyhydroxyethyl methacrylate and its derivatives and other  
hydrophilic  
proteins, polymers and copolymers.

Claims Text - CLTX (22):

11. A method as in claim 10 wherein said first layer  
comprises  
polyacrylamide, glutaraldehyde-cross-linked collagen or  
albumen,  
polyhydroxyethyl methacrylate and its derivatives and other  
hydrophilic  
proteins, polymers and copolymers.